

Notice of Allowability	Application No.	Applicant(s)	
	09/977,973	IKEDA ET AL.	
	Examiner Shih-wen Hsieh	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to application filed on Oct. 17, 2001.
2. The allowed claim(s) is/are 1-5.
3. The drawings filed on 17 October 2001 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date _____.
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 4-24-03
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

SHIH-WEN HSIEH
PRIMARY EXAMINER

S.764 6-7-05

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the specification:

Page 18, line 6, "carriage 5" has been changed to "carriage 50", since numeral "5" stands for carriage portion. Or, change "carriage 5" into "carriage portion 5" which ever is appropriate.

Page 18, line 15, L_m has been changed to L_c based on fig. 4.

In the claim:

Claim 1:

The following changes are to correct a minor lack of antecedent basis problem:

Line 5, "the direction intersecting the conveying direction" has been changed to "a direction intersecting a conveying direction".

Line 8, "the drive transmitting portion" has been changed to "a drive transmitting portion".

Lines 19-20, "the upstream side" has been changed to "an upstream side".

Line 22, "the vertical line" has been changed to "a vertical line".

Lines 24-25, "the tangential line" has been changed to "a tangential line".

Line 25, "the outer circumference" has been changed to "an outer circumference".

Line 1 of page 27, "the friction force" has been to "a friction force".

Line 4 of page 27, "the time of said carriage" has been changed to "a time of said carriage".

Claim 2:

Line 2, "the structure" has been changed to "a structure".

Claim 3:

Line 3, "the rotation" has been changed to "a rotation".

Line 8, "the weight of said carriage, the gravitational position" has been changed to "a weight of said carriage, a gravitational position".

Line 2 of page 28, "the distance" has been changed to "a distance".

Line 5 of page 28, "the friction coefficient" has been changed to "a friction coefficient".

Lines 6-7 of page 28, "the position" has been changed to "a position".

Line 8 of page 28, "the acceleration" has been changed to "an acceleration".

2. claims 1-5 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 1-5 is the inclusion of the limitations of said bearing portion is structured to be in contact with said guide shaft at

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two points on the upstream side and downstream side in the conveying direction of said recording medium with respect to the direction of the vertical line running through the center of said guide shaft, and each angle formed in the directions of the tangential line on the outer circumference of said guide shaft and the vertical line at each of the contact points between said bearing portion and said guide shaft is set to make the friction force generated between said guide shaft and said bearing portion larger than the force generated at the time of said carriage being accelerated to cause said bearing portion to slide in the circumferential direction of said guide shaft. It is these limitations found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,471,427, "Print head carrier with rotatable bearings" issued to Boyatt, III et al., 10/2002 teaches in their figs 2-5 roller bearing (26) for a print head carrier (24), the

bearings are disposed against shaft (14), and are on either side of the carrier (24) in a scanning direction (27). From figs. 2, 4 and 5, the contact points of the upper two bearings can be seen as one in the upstream side, while the other is in the downstream side with respect to a fictitious vertical line (not drawn in the fig) through the center of the shaft, since it is clearly understood that a printing medium can be traveled in a direction, which is orthogonal to the carrier reciprocating direction (27), although the travel direction of the medium is not mentioned in Boyatt, III et al.'s invention. However, Boyatt, III fail to further teach the angle issues as those in the instant application.

US 5,867,188, "In jet printer" issued to Murayama et al., 2/99 teaches in their fig. 25 (prior art) a carriage (1108) slides on guide shaft (1104), and the carriage is mounted to ball bearing 1105a, 1105b and 1105c. Bearings 1105a and 1105b contact the guide shaft at points corresponding to the upstream and downstream side as those in the instant application, still, Murayama et al. also fail to teach the angle issues as those in the instant application.

US 5,465,107, "Print head drive system for serial printer" issued to Mayo et al., 11/95 teaches in their fig. 1 a print head carrier includes members 28, which are integral with and extend vertically from members 24. Two bearing housings 30, 32 are integral with and extend outwardly from members 28 in the downstream direction. A slide bearing (not shown) is provided in each bearing housing so that the print head carrier may slide on the carrier guide rod 16.

US 5,459,496, "Electronic typewriter" issued to Hanabusa et al., 10/95 teaches in their figs. 2, 5A, 14, 15 and 17 bearings 25 and 25', also, Hanabusa et al. fail to teach the angle issues as those in the instant application.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**SHIH-WEN HSIEH
PRIMARY EXAMINER**


Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH

 June 7, 2005